

Winter 2019-20 Outlook

Mark O'Malley

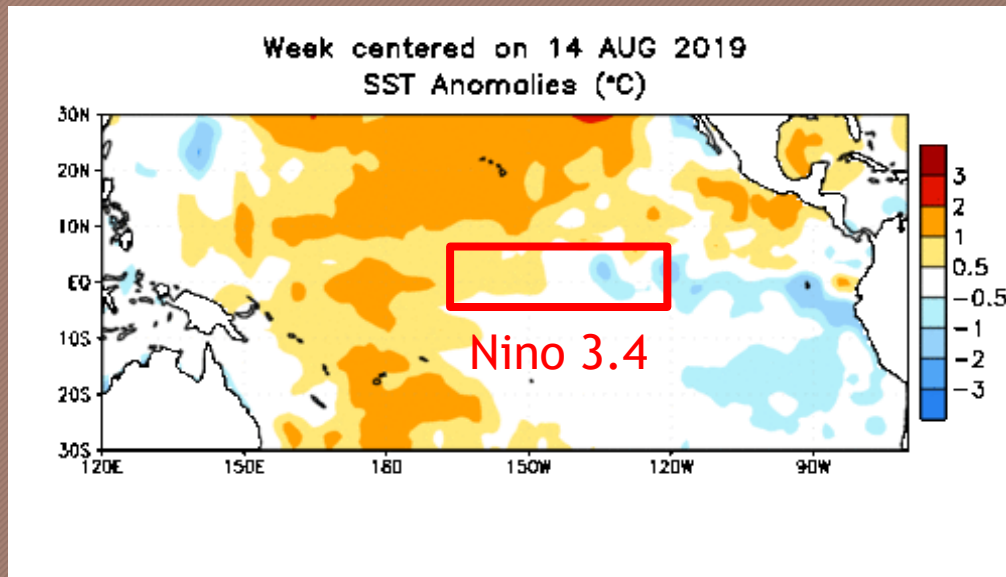


National Weather Service
Phoenix, AZ

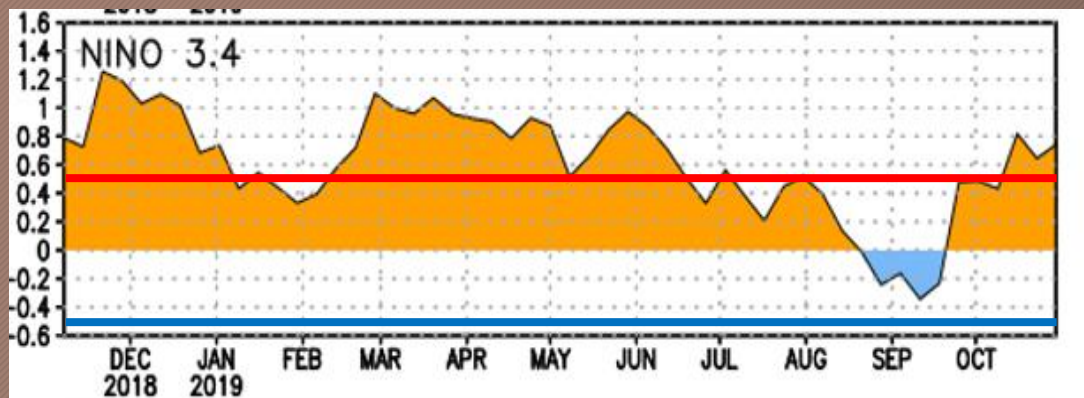
www.weather.gov/phoenix



Conditions in Tropical Pacific



- Weak El Niño conditions persisted well into the spring/early summer (much longer than usual)
- Sea surface temperatures (SST) quickly cooled in the summer yielding a neutral state
- SST's have recently warmed again, but this appears to be a sub-seasonal spike which will cool back to normal in the next month



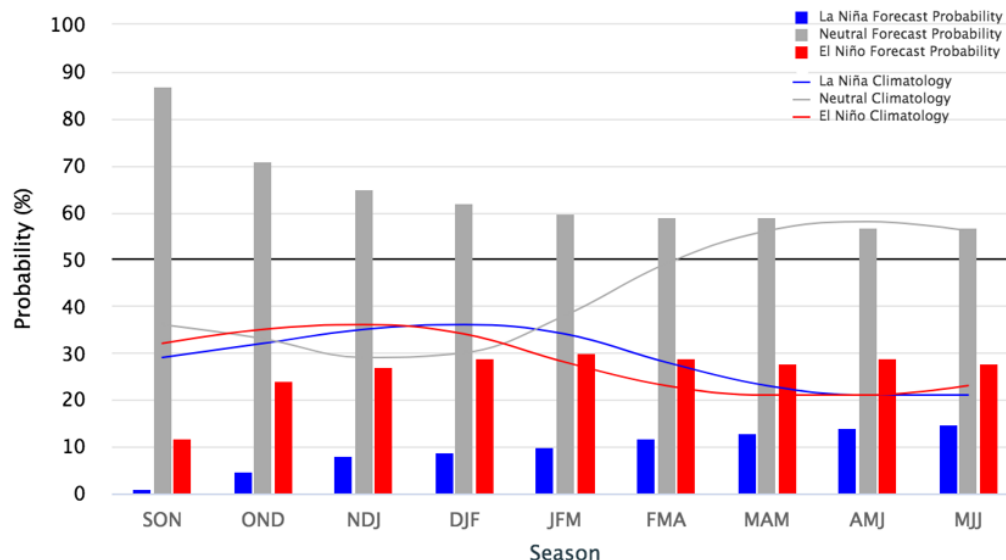


El Nino/La Nina

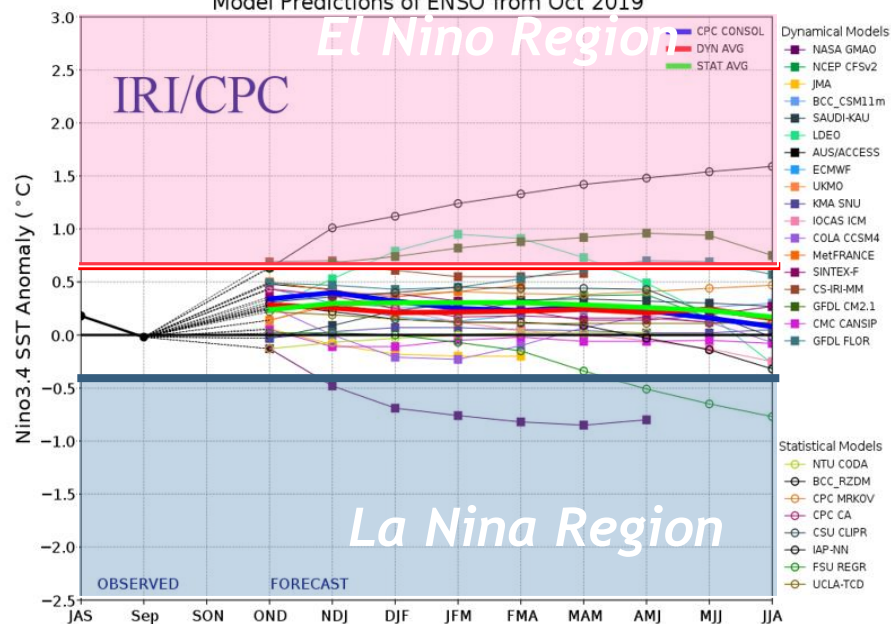
- ENSO neutral conditions are strongly favored through the winter and early spring

Early–October 2019 CPC/IRI Official Probabilistic ENSO Forecasts

ENSO state based on NINO3.4 SST Anomaly
Neutral ENSO: -0.5°C to 0.5°C



Model Predictions of ENSO from Oct 2019

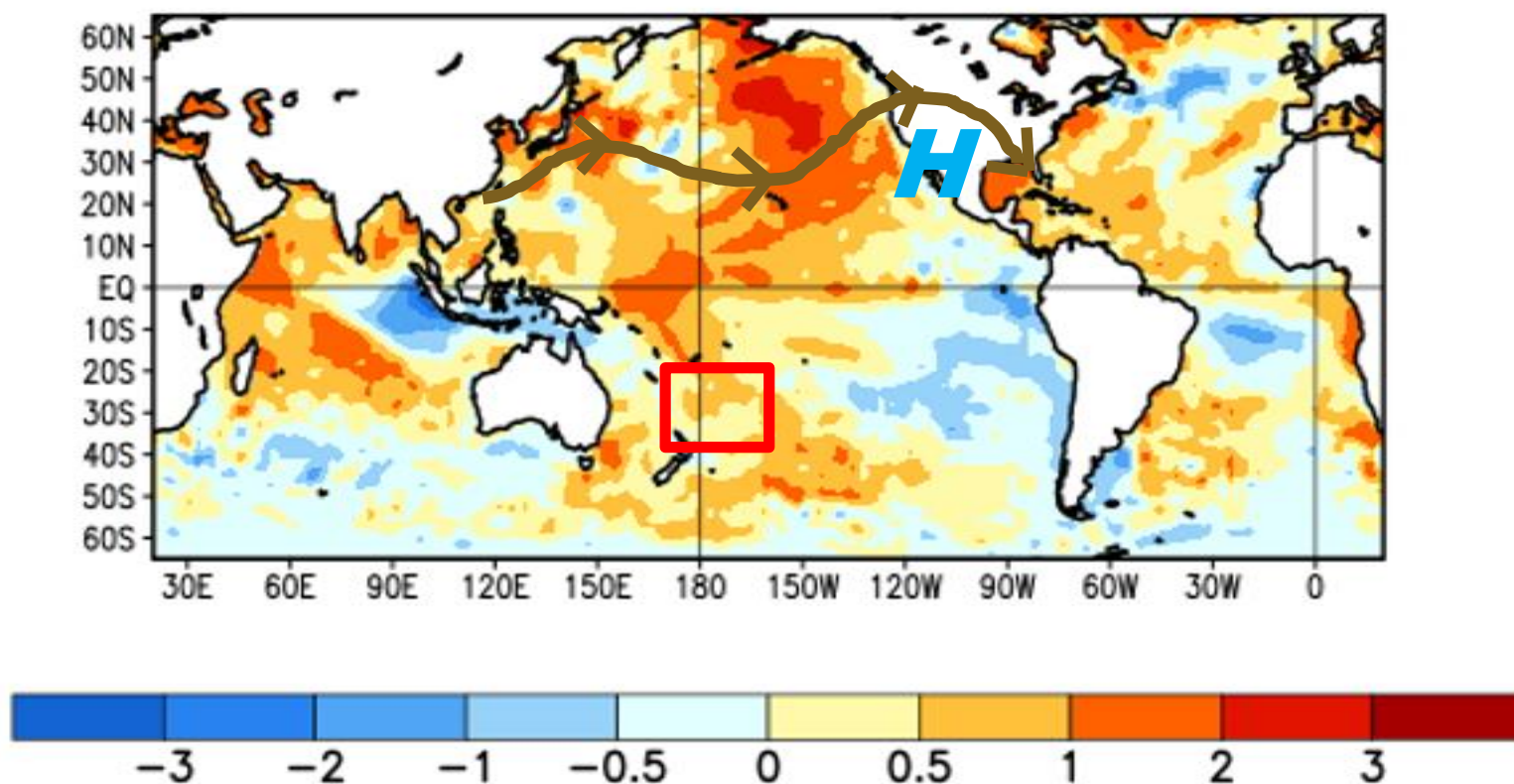


- Forecast models are fairly consistent in depicting neutral conditions through spring 2020
- There is almost no evidence of La Nina on the horizon and only a minority of forecast members suggesting El Nino re-emerging



Elsewhere in the Pacific

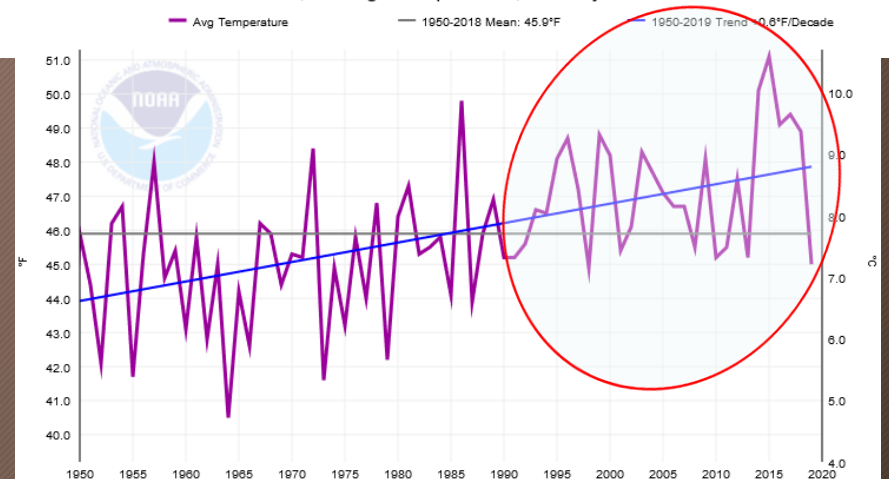
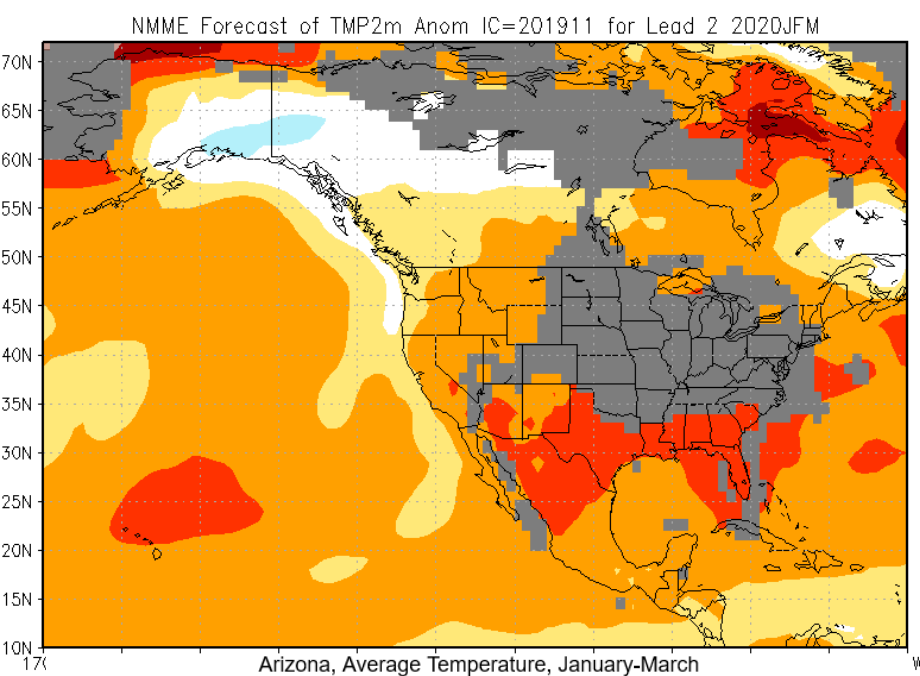
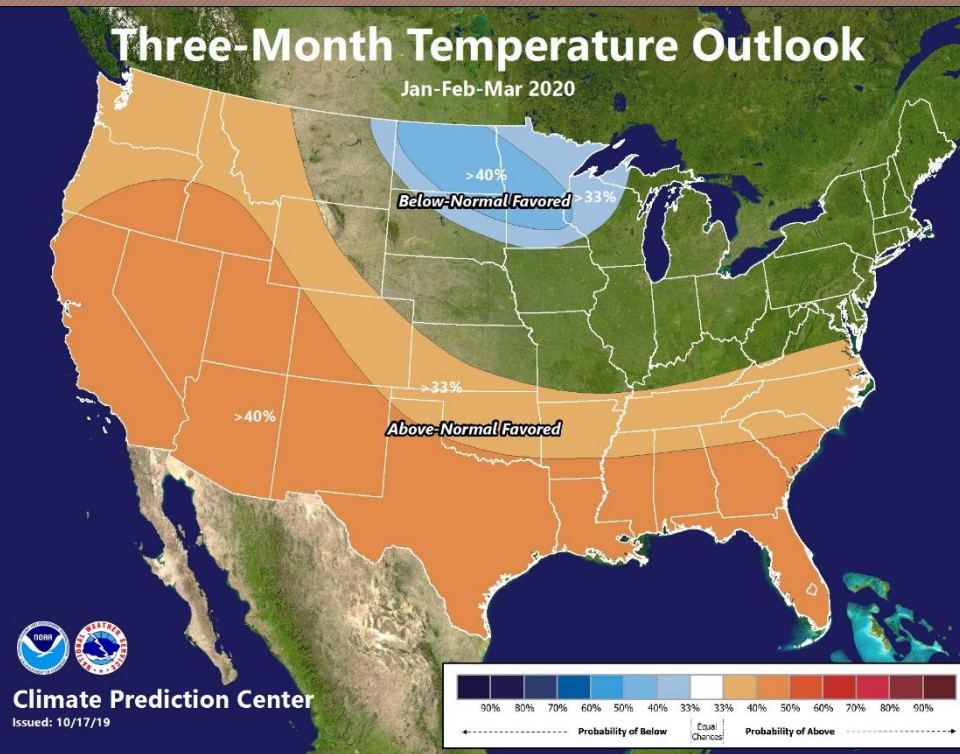
Average SST Anomalies
6 OCT 2019 – 2 NOV 2019



Teleconnections with warmer Pacific Ocean water, tracking back as far as Australia may favor more frequent periods of dry, high pressure over Arizona



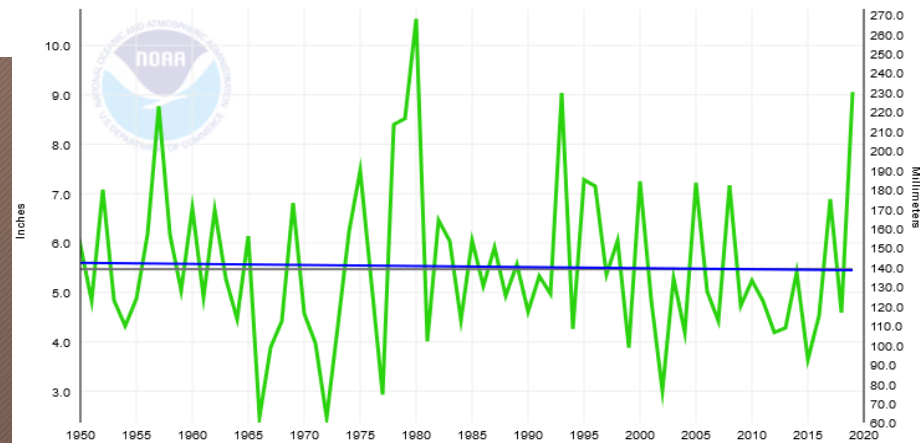
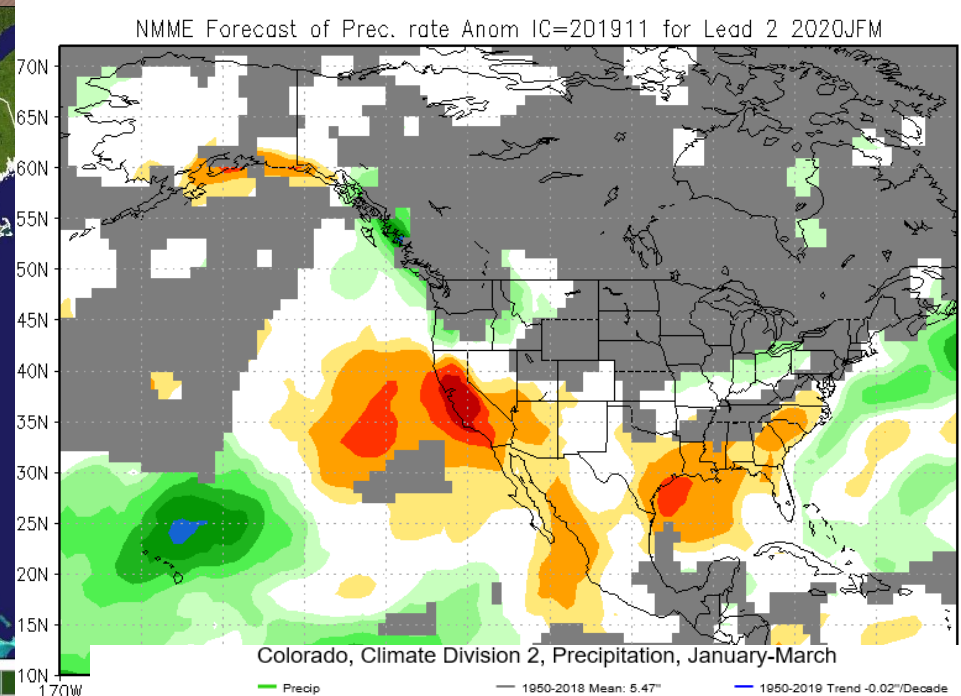
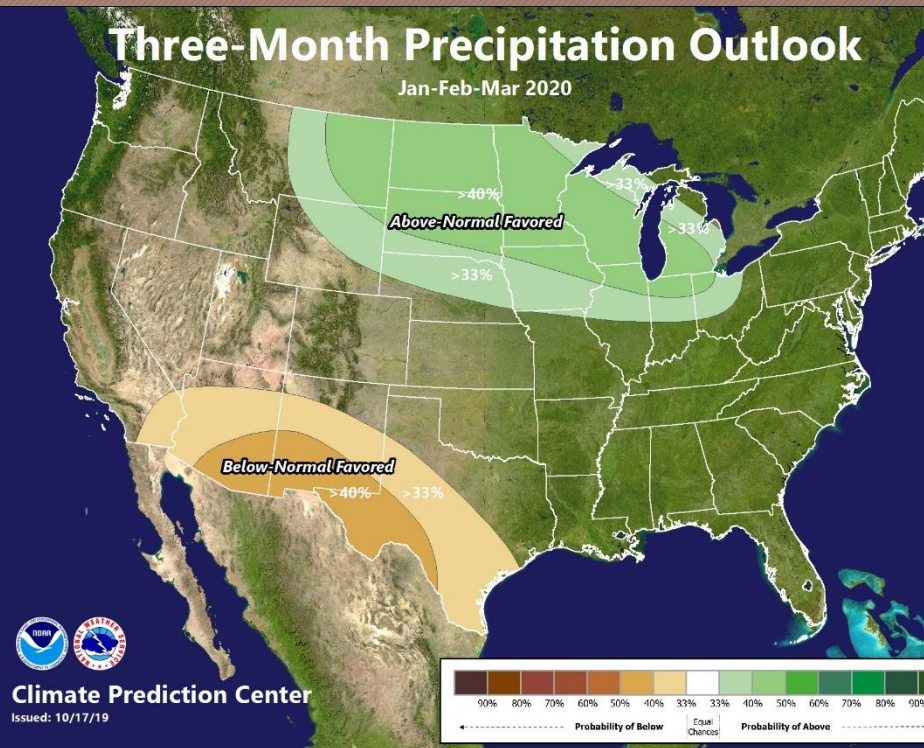
Temperature Outlook: Jan/Feb/Mar 2020



Three-month averages
Better odds for above
normal temperatures



Precipitation Outlook: Jan/Feb/Mar 2020



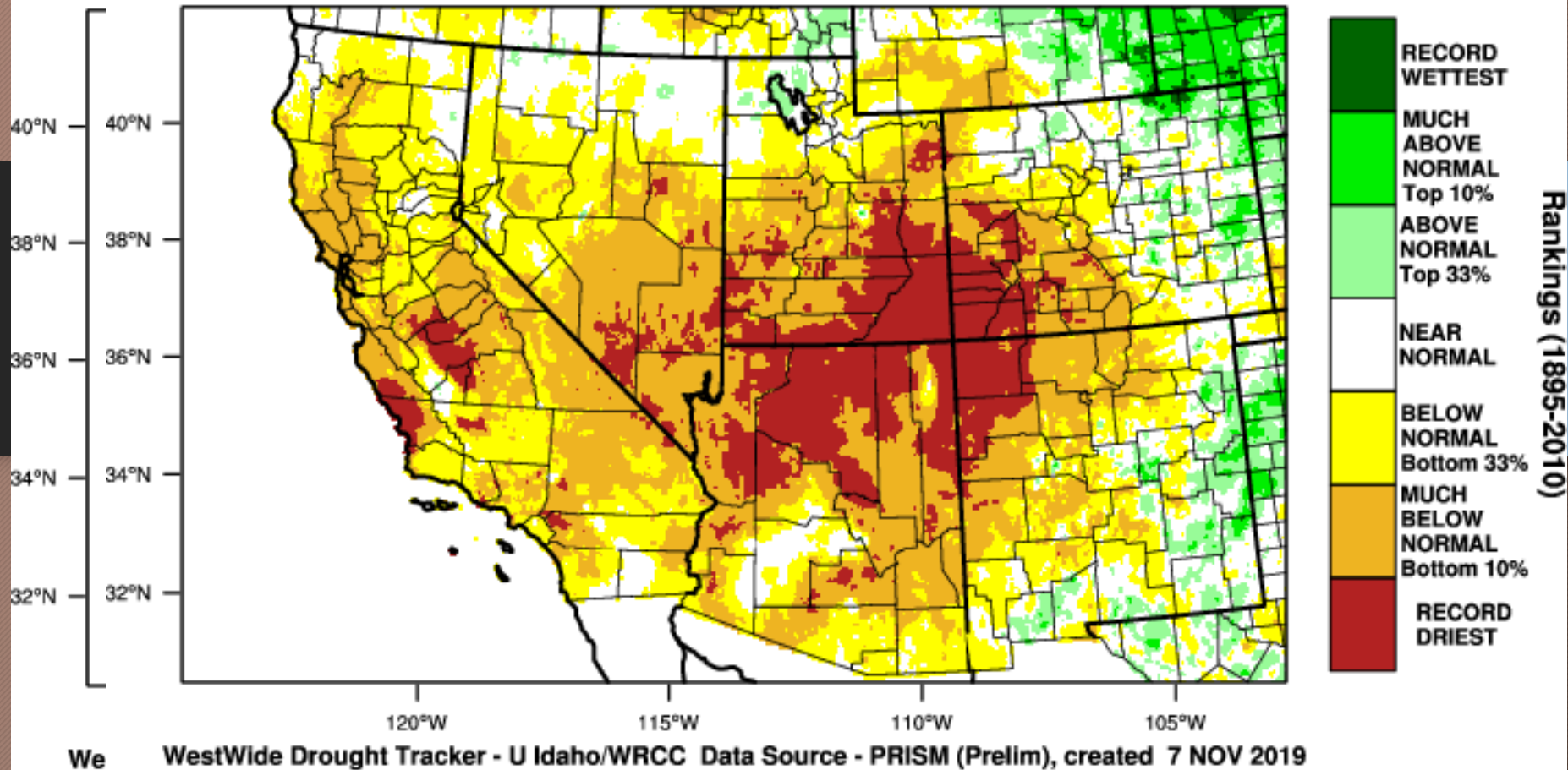
Three-month averages
Slight tilt in odds towards
lower than normal
precipitation



Monsoon + Water Year 2019-20

Precipitation

Southwest - Precipitation
June-October 2019 Percentile



- Lack of rainfall and much warmer temperatures during the monsoon and early fall likely will result in drier soils, and concerned upcoming runoff will be impacted



Summary

- The outlook for winter 2019-20 indicates ENSO neutral conditions likely persisting through the spring
- By itself, ENSO neutral conditions offer no skillful prediction for seasonal weather in Arizona
- Odds are shifted towards a warmer than normal winter based on a combination of model output and trends over the past 10-15 years
- Water temperature anomalies elsewhere in the Pacific may be some influence this winter towards drier conditions
- Climate models and official forecast indicate a slight tilt in odds towards a drier than normal winter
- Concerns exists that antecedent dry soils may negatively impact runoff in the upcoming water year even if near average snowfall occurs



Questions? Contact us!

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